



ORAL HEALTH;

COMPARE THE PERCENTAGE DECREASE IN SCORE OF ORAL HEALTH RELATED QUALITY OF LIFE IN PATIENTS PROVIDED WITH REMOVABLE PARTIAL DENTURES AND FIXED PARTIAL DENTURES.

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ABSTRACT... Objective: To compare the percentage decrease in score of Oral health related quality of life in patients provided with removable and fixed partial dentures. Evaluation of Prosthodontic treatment is made on the basis of clinical observations or from the patient satisfaction¹. tooth loss deteriorates the psychological, functional and social status of an individual. OHRQoL has been considered as a tool for measurement of consequences of tooth loss and available treatment options. Quality of life is influenced by use of removable partial dentures or fixed partial dentures which may also deteriorate oral functions. **Setting:** Department of Prosthodontic, de'Montmorency College of Dentistry/Punjab Dental Hospital, Lahore. **Study Design:** Randomized Controlled Trial. **Period:** 07th May 2011 to 07th November 2011. **Method:** Total 60 partially dentate subjects with two teeth missing in either dental arch recruited from OPD of department of Prosthodontic, de'Montmorency College of Dentistry/Punjab Dental Hospital, Lahore. They were divided equally into two groups (Group 1=30 subjects for RPR, Group 2=30 subjects for FPD). All the subjects were given OHIP-14 questionnaire to measure the OHRQoL before treatment and one month after the provision of prosthesis. Before and after treatment scores were recorded on 5 points Lickert scale and coded as +0=never,1=hardly ever,3=occasionally,4=fairly often,5=very often. The scores on Lickert scale were inversely proportional to the improvement in OHRQoL. **Results:** Subject with FPD group showed marked decrease in percentage of OHRQoL after the provision of prosthesis. In comparison with FPD percentage decrease in OHRQoL was less pronounced in RPD group. There was 62.84% reduction in OHRQoL score who were randomized in removable partial dentures while 90.53% reduction was observed in OHRQoL score who were randomized in fixed partial dentures. This showed that fixed partial dentures are more effective in improving quality of life of patients with partial dentations. **Conclusion:** Subjects with FPD showed marked decrease in percentage of OHRQoL; suggest that FPD influenced their social, psychological and functional status in a more positive way as compared to the subjects provided with RPD.

Key words:

Oral Health Related quality of Life (OHRQoL), Oral Health Impact profile (OHIP), Quality of life (QOL), Fixed partial denture (FPD), Removable partial denture (RPD).

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INTRODUCTION

The purpose of a prosthodontic treatment is to replace a certain number of lost or damaged teeth in order to achieve a functional and esthetic rehabilitation of the stomatognathic system.¹ Various treatment options available for replacing missing teeth are removable partial dentures, fixed partial dentures, resin-bonded dentures and implants supported dentures.² but the choice of treatment depends upon multidimensional nature of tissue health and best possible outcomes considerations.³

Patient's expectations from the fixed partial dentures are psychological, easy maintenance, long service and enhanced function and esthetics. Removable partial dentures are preferred in the case of multiple missing teeth, low cost and the elderly patients with periodontal diseases^{4,5} Dentist's responsibility is to educate the patients about suitable treatment options⁴, so as to restore the physical functions impaired by tooth loss.⁶ Studies have shown, Patient's satisfaction with prosthodontic therapy have significant impact on their Quality of life.^{7,8}

The term oral health related quality of life is a multidimensional concept⁹, which facilitates studying of the impact of disease on a person's total oral health¹⁰, their social behaviors, mental and emotional profile.¹¹ Oral Health Related Quality of Life has been considered as an outcome measure to assess the consequences of missing teeth replaced by available treatment options.¹² It is the patient based assessment tool¹³ that has been an increasingly popular subject of research for the last ten years.¹⁴

Oral Health Impact Profile questionnaire¹⁰ is based on WHO conceptual framework for International Classification of Impairment, Disabilities and Handicaps (ICIDH).¹⁵ OHIP consist of 49 items questionnaire which have seven subdomains namely functional limitations, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicaps.^{16,17}

Oral health impact profile has several short forms ranging from 30 to 5 items questionnaires, to compensate for long time usage to complete the proforma which increases the cost and also problems for elderly people to answer. OHIP-14 items version is most widely used population based clinical research instrument.^{18,19} Besides the English version, it has been translated into Chinese, Sinhalese, French, Italian, German, Swedish, Hungarian and Japanese versions showing its cross cultural equivalence.²⁰

Problems of esthetic, phonetic and mastication or disability as a result of tooth loss create negative impact on quality of life.²¹ Prosthodontic therapy should have the functional and psychological adaptation by the patient to improve quality of life.²² Pre treatment and post treatment patient based assessment tool help, the clinician to improve the quality of life.⁵

There was 80% decrease in OHRQoL after 1 month in a group treated with fixed partial dentures and 39.5% decrease in OHRQoL after 1 month in group treated with removable partial dentures.²³ whereas study by Ozahayat showed 46.6% decrease in OHRQoL in group treated with

removable partial dentures and 38.77% decrease in OHRQoL in a group of patient treated with fixed partial dentures.²⁴

OHRQoL in partially dentate subjects is very little studied.¹⁸ Studies showed that quality of life in the elderly patients treated with RPD seems to be improved whereas relatively young patients showed better OHRQoL with FPDs.^{4,18} But there is still the need for an extensive work on the topic so as to give the broader view of the subject.⁴

Aim of this study is to compare the percentage decrease in OHRQoL among the patients provided with removable partial dentures so that we may come to know which type of dentures can better improve the quality of life of patients.

METHODOLOGY

Sample study were consist of 60 partially dentate subjects with 2 teeth missing in either arch recruited from OPD of department of Prosthodontic de'Montmorency College of Dentistry/Punjab Dental Hospital, Lahore, fulfilling the inclusion and exclusion criteria. Informed consent was taken from each patient. Patients were underwent a thorough history and clinical examination.

They were divided into two groups comprising of 30 subjects for removable partial dentures and 30 for fixed partial dentures by using lottery method. Demographic data (name, age, gender) was collected and noted from the patient. In addition, a questionnaire OHIP-14 was administered to measure the oral health related quality of life. A questionnaire consists of 14 questions which cover 7 domains namely functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. Responses by the subjects were made on 5 point likert scale and coded as (0=never: 1=hardly ever: 2=occasionally: 3=fairly often: 4=very often) the scores on likert scale are inversely proportional to the improvement in oral health related quality of life. Removable and fixed partial dentures were made by the post-graduate students and experienced prosthodontists. All the 60 patients were subjected to answer the OHIP-14 before treatment and one month after

the provision of prosthesis by researcher himself. The pre treatment scores and post treatment scores of oral health related quality of life were noted on pre-designed proforma (Attached).

SPSS software version 11 was used to analyze the data. The demographic variables (age, gender) were analyzed using Simple Descriptive Statistics. Age, pre-treatment OHRQoL and post-treatment OHRQoL scores were presented by calculating Mean + S.D .Gender was presented by as frequency and percentages. Mean post-treatment score was subtracted from mean pre-treatment score. Then this subtracted value divided by mean pre-treatment score and multiply with 100 and percentage decrease in OHRQoL score was calculated for both groups.

RESULTS

This study estimates the impact of conventional fixed partial denture and removable partial denture on OHRQoL by means of a subjective evaluation of responses of patient on questionnaire (OHIP-14). Intrasubject comparisons within-item were also made with the same questionnaire (OHIP-14) used before and one month after prosthetic treatment, that result in more complete information obtained after prosthetic treatment by keeping the same number of items.

There were total 60 cases with mean age of 33.05±6.55 years with minimum age of 25 year and maximum age of 50 years. The mean

age of patients in removal denture group was 34.60±7.29years while the mean age of patients in fixed denture group was 31.5±5.41years (Table-I).

In this study, there were total 33 (55%) males and 27 (45%) females. The male to female ratio was 1.2:1. There were 17 (56.7%) males randomized in removal denture group while 16 (53.3%) were randomized to fixed denture group. Among females, 13 (43.3%) were randomized to removal denture group while 14 (46.7%) were randomized to fixed denture group (Table-II).

Analysis showed that there was no difference in different age groups subjects regarding post treatment improvement in OHRQoL. Mean post treatment scores for all age groups was almost same with insignificant p-value (Table-III).

The mean score of all domains was 22.18+4.72 which was significantly reduced to 4.98+4.41 (p-value = 0.000). In removable denture score groups, the mean score was 20.80+5.12 which was significantly reduced to 7.73+3.79 (p-value = 0.000). In fixed denture score groups, the mean score was 23.56+3.89 which was significantly reduced to 2.23+3.08 (p-value = 0.000). There was significant difference between both study groups. Fixed dentures showed more reduction in OHRQoL score among patients with partial dentations (Table-IV).

		Group of the patients		Total
		Removable denture	Fixed Denture	
Age of the patients (Years)	N	30	30	60
	Mean	34.60	31.5	33.05
	SD	7.29	5.41	6.55
	Minimum	26	25	25
	Maximum	50	45	50
	Range	24	20	25

Table-I. Descriptive Statistics of age of patients (Years) with respect to study groups

		Study Group		Total
		Removable denture	Fixed Denture	
Gender	Male	17 (56.7%)	16 (53.3%)	33 (55%)
	Female	13 (43.3%)	14 (46.7%)	27 (45%)
	Total	30 (100%)	30 (100%)	60 (100%)

Table-II. Gender of the patients with respect to study groups

Age groups (years)	<30	30-40	>40	Total
N	30	17	13	60
Mean	17.2333	18.0588	16.0000	17.2000
Std. Deviation	6.96139	6.75898	6.95222	6.82418

Table-III. Mean change in scores with respect to age
p-value = 0.721

DISCUSSION

This study estimated the impact of fixed partial denture and removable partial denture on OHRQoL by mean of an oral health impact profile questionnaire (OHIP-14). Studies by Biazevic et al²⁷, John et al²⁹, Ozahayat et al²⁸ have also used this questionnaire to assess the OHRQoL in patients with missing teeth. Comparisons of subject within-item were measured with the same scale (OHIP-14) used before and one month after provision of FPD and RPD treatments. That result in more complete information obtained after prosthetic treatment by keeping the same number of items, taking into account that short questionnaires are more effectively administered and receive a higher response rate.¹⁹

Present study showed no difference in different age groups regarding improvement in OHRQoL after the provision of FPD and RPD. There was equally improvement with insignificant difference in all age groups. Study by Javier Montero et al²⁸ also showed the same result, but Ozahayat²⁴ found a significant positive correlation between different age groups and improvement in OHRQoL.

Present study found that following treatment with RPD and FPD there was no gender difference regarding improvement in OHRQoL with either treatment. These results were consistent with Study by Ozhayat²⁴, whereas study by Javier Montero et al¹²² showed more improvement in male subjects than female.

In present study there was 62.84% reduction in OHRQoL score who were randomized in removable partial dentures while 90.53% reduction was observed in OHRQoL score who were randomized in fixed partial dentures. Result of this study showed that fixed partial dentures are more effective in improving quality of life of patients with partial dentations.

The mean baseline score of all patients was 22.18+4.72 which was significantly reduced to 4.98+4.41 (p-value = 0.000). In removable denture score groups, the mean baseline score was 20.80+5.12 which was significantly reduced to 7.73+3.79 (p-value = 0.000). In fixed denture score groups, the mean baseline score was 23.56+3.89 which was significantly reduced to 2.23+3.08 (p-value = 0.000). There was significant difference between both study groups. Fixed dentures showed more reduction in OHRQoL score than the patients with removable partial denture.

John²³ et al found 80% decrease in OHRQoL score after 1 month, assessed in group treated with fixed partial dentures and 39.5% decrease in OHRQoL after 1 month in group treated with removable partial dentures. The pre-treatment summary score of 30 dropped to 6 units after one month of treatment with FPDs and for RPDs the pre-treatment summary score of 38 dropped 23 units after one month of treatment.

In accordance with present study another study by John et al²⁶ showed that patients receiving fixed partial denture had the lowest OHRQoL score. Tan K reported more than 90% of patients wearing FPD were satisfied with having missing teeth replaced by fixed partial dentures.³¹

In contrast to present study, Bohning et al²⁹ found that subject with removable partial dentures had slightly less impaired OHRQoL as compared with the subject with fixed partial dentures. Another study by Ozahayat EB²⁴ found higher improvement for the RPD group than the FPD group i.e. RPDs subjects showed more improvement than the FPDs participants.

QUESTIONS	Groups		Never	Hardly ever	Occasionally	Fairly Often	Very often
1. Have you had trouble pronouncing any words because of problems with your teeth, mouth or dentures?	RPD	Before	13 (43.3%)	9 (30.0%)	5 (16.7%)	3 (10%)	0 (0%)
		After	16 (53.3%)	8 (26.7%)	6 (20%)	0 (0%)	0 (0%)
	FPD	Before	13 (43.3%)	6 (20%)	10 (33.3%)	1 (3.3%)	0 (0%)
		After	27 (90%)	3 (10%)	0 (0%)	0 (0%)	0 (0%)
2. Have you had felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?	RPD	Before	15 (50%)	8 (26.7%)	3 (10%)	4 (13.3%)	0 (0%)
		After	22 (73.3%)	6 (20%)	2 (6.7%)	0 (0%)	0 (0%)
	FPD	Before	14 (46.7%)	12 (40%)	4 (13.3%)	0 (0%)	0 (0%)
		After	27 (90%)	2 (6.7%)	1 (3.3%)	0 (0%)	0 (0%)
3. Have you had painful aching in your mouth?	RPD	Before	2 (6.7%)	10 (33.3%)	12 (40%)	4 (13.3%)	0 (0%)
		After	12 (40%)	8 (26.7%)	10 (33.3%)	0 (0%)	0 (0%)
	FPD	Before	2 (6.7%)	16 (53.3%)	8 (26.7%)	4 (13.3%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
4. Have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?	RPD	Before	5 (16.7%)	14 (46.7%)	8 (26.7%)	3 (10%)	0 (0%)
		After	12 (40%)	8 (26.7%)	10 (33.3%)	0 (0%)	0 (0%)
	FPD	Before	4 (13.3%)	18 (60%)	6 (20%)	2 (6.7%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
5. Have you felt tense because of problems with your teeth, mouth or dentures?	RPD	Before	1 (3.3%)	6 (20%)	9 (30%)	12 (40%)	0 (0%)
		After	5 (16.7%)	22 (73.3%)	2 (6.7%)	1 (3.3%)	0 (0%)
	FPD	Before	2 (6.7%)	12 (40%)	7 (23.3%)	9 (30%)	0 (0%)
		After	25 (83.3%)	4 (13.3%)	1 (3.3%)	0 (0%)	0 (0%)
6. Have you been self-conscious because of your teeth, mouth or dentures?	RPD	Before	1 (3.3%)	4 (13.3%)	8 (26.7%)	16 (53.3%)	1 (3.3%)
		After	2 (6.7%)	17 (56.7%)	17 (56.7%)	1 (3.3%)	0 (0%)
	FPD	Before	0 (0%)	2 (6.7%)	13 (43.3%)	9 (30%)	6 (20%)
		After	10 (33.3%)	19 (63.3%)	0 (0%)	1 (3.3%)	0 (0%)
7. Have your diet been unsatisfactory because of problems with your teeth, mouth or dentures?	RPD	Before	0 (0%)	3 (10%)	14 (46.7%)	12 (40%)	1 (3.3%)
		After	11 (36.7%)	16 (53.3%)	3 (10%)	0 (0%)	0 (0%)
	FPD	Before	0 (0%)	1 (3.3%)	14 (40%)	11 (36.75)	4 (13.3%)
		After	21 (70%)	7 (23.3%)	2 (6.7%)	0 (0%)	0 (0%)
8. Have you had to interrupt meals because of problems with your teeth, mouth or dentures?	RPD	Before	0 (0%)	8 (26.7%)	7 (23.3%)	15 (50%)	0 (0%)
		After	6 (20%)	13 (43.3%)	11 (36.75)	0 (0%)	0 (0%)
	FPD	Before	3 (10%)	7 (23.3%)	12 (40%)	7 (23.3%)	1 (3.3%)
		After	27 (90%)	2 (6.7%)	1 (3.3%)	0 (0%)	0 (0%)
9. Have you found it difficult to relax because of problems with your teeth, mouth or dentures?	RPD	Before	3 (10%)	9 (30%)	14 (46.7%)	4 (13.3%)	0 (0%)
		After	22 (73.3%)	5 (16.7%)	3 (3.3%)	0 (0%)	0 (0%)
	FPD	Before	0 (0%)	4 (13.3%)	12 (40%)	13 (43.3%)	1 (3.3%)
		After	27 (90%)	3 (10%)	0 (0%)	0 (0%)	0 (0%)
10. Have you been a bit embarrassed because of problems with your teeth, mouth or dentures?	RPD	Before	14 (46.7%)	6 (20%)	3 (10%)	7 (23.3%)	0 (0%)
		After	7 (23.3%)	8 (26.7%)	3 (10%)	7 (23.3%)	5 (16.7%)
	FPD	Before	25 (83.3%)	5 (16.7%)	0 (0%)	0 (0%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
11. Have you been bit irritable with other people because of problems with your teeth, mouth or dentures?	RPD	Before	23 (76.7%)	6 (20%)	1 (3.3%)	0 (0%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	FPD	Before	16 (53.3%)	11 (36.75)	3 (10%)	0 (0%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
12. Have you had difficulty doing your usual job because of problems with your teeth, mouth or dentures?	RPD	Before	10 (33.3%)	11 (36.7%)	8 (26.75)	1 (3.3%)	0 (0%)
		After	19 (63.3%)	8 (26.7%)	23 (10%)	0 (0%)	0 (0%)
	FPD	Before	0 (0%)	0 (0%)	22 (73.3%)	8 (26.7%)	0 (0%)
		After	26 (86.7%)	3 (10%)	1 (3.3%)	0 (0%)	0 (0%)
13. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures after?	RPD	Before	22 (73.3%)	4 (13.3%)	2 (6.7%)	1 (3.3%)	1 (3.3%)
		After	27 (90%)	3 (10%)	0 (0%)	0 (0%)	0 (0%)
	FPD	Before	12 (40%)	10 (33.3%)	7 (23.3%)	1 (3.3%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
14. Have you been totally unable to function because of problems with your teeth, mouth or dentures before?	RPD	Before	25 (83.3%)	4 (13.3%)	1 (3.3%)	0 (0%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	FPD	Before	27 (90%)	3 (10%)	0 (0%)	0 (0%)	0 (0%)
		After	30 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Table-IV. Comparison of mean pre-treatment and post-treatment scores in both study groups
 (Note: Row wise Independent sample t-test was applied, Column wise paired sample t-test was applied)

Ozahayat showed 46.6% decrease in OHRQoL score in group treated with removable partial dentures and 38.77% decrease in OHRQoL score in a group of patient treated with fixed partial dentures. The mean baseline OHIP score of 49 dropped to 30 after one month of treatment with fixed partial dentures and pretreatment score of 75 dropped to 40 after one month of treatment with removable partial denture.²⁴

Recent study by Montero J et al²⁸ also reported that patients receiving RPDs perceived significantly more improvements in OHRQoL than those treated with FPDs.

These findings are in contrast to present study which may be due to different in patient selection criteria for other studies and differences in patient population and sampling variability.

Comparison of OHRQoL data for patients with fixed partial dentures and removable partial dentures have not been reported yet in Pakistani population so there is no previous study for comparison in this population. Population based survey in Germany had demonstrated more satisfied subjects wearing FPDs than RPDs.²³

Present study measures the post treatment OHIP scores after one month. It was expected that one month after treatment, conventional prostheses allow patients to reach the level of satisfaction. OHIP score rapidly improved initially which is consistent with literature.⁶ Large difference was observed between the FPDs and RPDs at pre and post treatment score which was expected. Post treatment decrease in OHRQoL score showed more improvement in fixed partial dentures patients.

After receiving removable partial denture treatments pain and physical discomfort were the negative issues. Patients with FPD were more comfortable than RPD, which is supported by study by Javier Montero.²⁸ Prosthodontic rehabilitation performed significant differences with regard to satisfactory in eating, as chewing was the expected items to change positively, FPDs seemed to facilitate eating the most.^{24,28}

FPD candidates showed the least psychological discomfort than do those candidates for removable prostheses who reported significantly higher OHIP scores. This study has demonstrated that subjects requiring FPDs had comparably lower impact on the functional limitation domain than did RPDs candidates. Moreover, patients requiring RPDs were more physically and socially impaired than FPDs candidates. FPDs were significantly more comfortable than RPDs at followup; these findings are consistent with the literature.^{24,28}

Mostly RPDs patients experienced worsening conditions after prosthetic treatment, mainly in comfort (26.5%) and chewing ability (20.6%)²⁸, as these patients were first time new removable denture wearers who had not yet become familiar with their prostheses. Some authors have reported similar results among recently rehabilitated patients.^{23,25,30}

CONCLUSION

Oral health related quality of life improved after receiving conventional removable and fixed partial denture treatments. These treatments reduced the problems like esthetic, phonetic and mastication reported before treatment. Subjects with fixed partial denture showed marked percentage decrease in score of OHRQoL; suggest that FPD influenced their social, psychological, physical and functional status in a more positive way as compared to the subjects treated with RPD.

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Sometimes the wrong choices bring us to the right places.
 – Unknown –”

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